Comment on **NPRM on 14 CFR Parts 1, et al. "Area navigation (RNAV) and Miscellaneous Amendments; Proposed Rule" Docket: FAA- 2002- 14002**.

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I have made an in-depth examination of the NPRM, FAA 2002 14002, and found it to be a deeply flawed document that will do irreparable harm to the US aviation industry. If enacted in its present form, these regulations will set back global aviation standardization and harmonization by 5 to 10 years. It will require the efforts of dozens of individuals, hundreds of thousands of dollars, and probably at least two years to undo the damage this document will create.

Because of the complexity of this document, and its complex interaction with other regulatory documents, Alaska Airlines **requests a full document review**.

General Impression: The NPRM contains serious flaws both in its concepts and execution. If enacted in its present form, the rules will have a disastrous affect upon the global harmonization achieved in AC120-28D and AC120-29A, and will corrupt and subvert both the intent and guidance offered by these two Advisory Circulars, as well as Operations Specifications. **The NPRM will in effect establish a second, parallel set of regulations and definitions that will be confusing to operators, avionics and equipment manufacturers, and instrument procedure developers. The NPRM is going in the opposite direction of worldwide aviation harmonization.**

AC120-28D and AC120-29A were developed by industry, FAA, and JAA experts through numerous meetings over a period of years, and with the investment of hundreds of thousands of dollars, and thousands of man-hours. These documents were painstakingly crafted and harmonized by the brightest, most knowledgeable minds in aviation. The NPRM is an affront to the efforts expended for harmonization and standardization by the AWOHWG.

The NPRM creates serious contradictions with these Advisory Circulars in terminology, definitions, and philosophy. The definitions and content in the NPRM create a "definitional box" which appears to support a presupposed outcome: namely WAAS and LAAS (the concept of precision RNAV).

The NPRM creates and/or defines three basic classes of instrument approaches: Non-Precision Approach (NPA), Approach Procedure with Vertical guidance (APV), and Precision Approach (PA). This contradicts the classifications and intent of AC120-29A.

AC120-29A (Section 4.3.7.1.c.5) discontinues the use of the former terminology "precision" and "nonprecision", explicitly states that these terms can be confusing and ambiguous, and their use is discouraged in favor of the common generic term "instrument approach".

AC120-29A (Sections 4.3.2, 4.3.3, and 4.3.7.1.c.1) establishes three general classifications of instrument approaches:

- **xLS**
  - ILS
  - MLS
  - GLS
- **RNAV**
  - Based on RNP (3D or 2D)
  - "Other" RNAV (3D or 2D)
  - Note:
    - 3-D RNAV (suitable for LNAV/VNAV)
    - 2-D RNAV (suitable for LNAV only)
- "**other than xLS or RNAV**"
  - Includes traditional or classic procedures such as:
    - VOR or VOR/DME
    - NDB or NDB/DME
    - LOC and LOC/BC
    - ASR
    - LDA and SDF
  - These approaches may be flown using (Section 4.3.3.b. and c.):
    - Vertical Navigation Path Guidance (VNAV)
    - Constant Vertical Descent Rate

AC120-29A also approves criteria for approaches to be operated to the minima described as CAT I through CAT IIIc, depending upon the lowest DA (or MDA), and the required visibility.

The single greatest failing of the NPRM is its divergence from this classification of approaches. The FAA and US aviation industry should not go down this path! The NPRM should be rewritten to conform to the classification of approaches as described in AC120-29A. The NPRM should also be rewritten to adopt the definitions and terminology of AC120-28D and AC120-29A. The terms "APV, nonprecision, and precision approaches" should be scrapped entirely.

Another area of great concern involves the intended rewriting of Part 91.175 (f) "Civil airport takeoff minimums". The indicated language may disallow the Engine Failure Turn Procedures used by air carriers at many of their airports.

Specific Comments on FAA-2002-14002, NPRM for **14 CFR Parts 1, et al. "Area navigation (RNAV) and Miscellaneous Amendments; Proposed Rule"**
Page 77329
II.D.3. En Route
ATS Route: Aligning terminology with IACO is OK.
Question: Do we continue to call these new ATS routes "Jet" or "Victor" airways? Is there a new term to be used for day to day communications? "ATS Route XYZ" is a mouthful. Need an example of what these new ATS routes are to be called.

Page 77329
II.D.4. Approach and Landing Using Instrument Approach Procedures
The FAA is proposing to amend, add, or revise the following definitions-

- **Nonprecision approach procedure**: AC120-29A Section 3.4. explicitly dropped this terminology.
- **Precision Approach procedure**: AC120-29A does not use this terminology, but rather uses CAT I, II, III, etc.
- **Approach Procedure with Vertical Guidance (APV)**: AC120-29A does not support this terminology, but rather uses the term "CAT I".
- **Category I Operations**: see discussion below.
- **CAT I, II, III, IIIa, IIIb, IIIc**: proposed definition at odds with AC120-29A. See discussion below.
- **Minimum Descent Altitude**: proposed definition at odds with AC120-29A. See discussion below.

Page 77329
III, Section 1.1 General Definitions
The terms "Approach procedure with vertical guidance (APV), Nonprecision approach (NPA), and Precision Approach (PA)" are contradictory to AC120-29A and should be removed.

Approach procedure with vertical guidance (APV)
This definition is not supported by AC120-29A, Appendix 1 "Definitions and Acronyms".
AC120-29A simply uses the term "CAT I". See AC120-29A Section 3.4.b.

"APV…a procedure based on lateral path and *glide path*. These procedures are flown to a decision altitude. Although these procedures include glide path information, they may not meet the requirements currently established for precision approach and landing operations. This includes the vertical navigation performance and airport infrastructure requirements….*Safety for these approaches is maintained by increasing the required obstacle clearance height or required visibility*. An example of an APV approach is the LNAV/VNAV approach minima currently published on RNAV approach plates."
Question: what is the definition of "glide path"? It is a critical definition that will include or exclude a number of things.

Comment: (These questions and comments point to a good reason to scrap the term APV and use AC120-29A concepts.)

1) Any conventional (VOR/NDB/DME) approach flown with a constant rate descent could be considered an APV. So could an RNP 0.15 with coded vertical angle and flown using Baro VNAV. The RNP approach is far more accurate both laterally and vertically.
2) Exactly how much is the obstacle clearance height and visibility increased? Need an explicit reference for this so we know what we are getting.
3) There are varying degrees of LNAV/VNAV capability. What you have on a Cessna is much different from the complete dual systems on a jet, especially those systems that are RNP capable.
4) Does a RNP approach flown in LNAV/VNAV even belong here, or is it in reality a precision approach?
5) Specific examples of what is considered an APV approach should be cited:
   -RNAV (GPS)
   -VOR/NDB/DME/LOC/LOC BC/LDA/SDF etc. flown with a constant rate descent.
   -Conventional approach flown in LANV/VNAV using a coded angle. There are differences in system abilities to fly VNAV – these need to be pointed out. There are high and low end systems.
   -What about RNP flown in LNAV/VNAV?

Page 77329
III, Section 1.1 General Definitions
Area Navigation (RNAV) route: "…would refer to ATS routes established for aircraft operators capable of using area navigation…"
Question: What are we going to call these in day to day operations? Are they "ATS RNAV Route XXX"?

Page 77329
III, Section 1.1 General Definitions
Category I Operation: "The FAA therefore proposing to add a definition of this term. The proposed definition of CAT I operation is "a **precision approach** with a decision height altitude that is not lower than 200' (60 meters) above the threshold and with either a visibility of not less than one half statute mile (800 meters) or a RVR of not less than 1800 feet (550 meters)."
This definition is not supported by AC120-29A, and is contradictory to the AC which defines a CAT I (US) as "an instrument approach….".
The ICAO definition does specify "a precision approach…"
AC120-29A does not specify a precision approach in the US.
This is a major problem.

Page 77329
III, Section 1.1 General Definitions
Category II
Category III
Category IIIa
Category IIIb
Category IIIc
"These definitions would be revised to incorporate the concept of *precision RNAV*. In each of these definitions, the terms "ILS approach" or "ILS Instrument approach" would be replaced with the terms "precision approach" and "precision instrument approach"…"
These definitions are not supported by AC120-29A. The AC simply specifies an "instrument" approach.
Comment: Exactly what is a "precision RNAV" approach? Is it WAAS? LAAS? RNP 0.3 or less?

Page 77329
III, Section 1.1 General Definitions
Final Approach Fix (FAF): "…a final approach fix is associated with a *nonprecision* approach."
This definition is not supported by AC120-29A: "The fix from which the final approach to the airport is executed…." AC120-29A does not differentiate between a nonprecision and a precision approach.

Page 77329
III, Section 1.1 General Definitions
Instrument Approach Procedure (IAP): This is included in AC120-29A Appendix 1 Acronyms.

Page 77329
III, Section 1.1 General Definitions
Minimum Descent Altitude (MDA): "The definition of MDA would be revised to change the words "final approach" to "*nonprecision* final approach"…."
This definition is not supported by AC120-29A, and is contradictory to the AC which in Section 3.4.a. explicitly drops use of the term "nonprecision" to reduce confusion which exists with use of this term.

Page 77329
III, Section 1.1 General Definitions
Nonprecision Approach Procedure: "FAA is proposing to revise the definition of this term so there is no reference to "electronic glide slope."
This definition is not supported by AC120-29A, and is contradictory to the AC which in Section 3.4.a. explicitly drops use of the term "nonprecision" to reduce confusion which exists with use of this term.

Page 77329
III, Section 1.1 General Definitions
Precision Approach Procedure: AC120-29A does not make use of this term.

Page 77330
III, Section 1.1 General Definitions
Precision Final Approach Fix (PFAF): "…a PFAF is associated with a precision or APV approach procedure."
This definition is not supported by AC120-29A, which uses only the term FAF to apply to all approaches. AC120-29A also does not use Precision approach or APV.

Page 77330
III, Section 1.2 Abbreviations and Symbols
APV
NPA
PA
These are not supported by AC120-29A.

Page 77330
III, Section 71.11 **Air Traffic Service (ATS) Routes**
Paragraph (b) "…would differ from the text of 71.75 by referencing FAA Order 8260.3 (TERPS) as the source for criteria regarding ATS route dimensions and protected airspace.
Comment: There is no mention of giving ATS routes an RNP value. Part 71.75 discusses the extent of Federal airways, the airspace within 4nm of the centerline, the 4.5 degree diverging angles beyond 51nm from the navaid, etc. With the advent of RNP these definitions may be obsolete and should at least be looked at.

Page 77330
III, Section 71.75 **Extent of Federal Airways**
"…would be removed and used as the basis for a new Part 71.11.
See comments immediately above concerning ATS routes and their extent.

Page 77330
III, Section 91.129 **Operations in Class D Airspace**
Continues on page 77331:
Section 91.129 (1): The phrase "served by an ILS" would read "served by and *APV* or *precision approach"*.
This terminology is not supported by AC120-29A.

Section 91.129 (2): The term "glide slope" would read "glide path" because …"glide path" includes both ILS and APV.
This terminology is not supported by AC120-29A.
Comment: "Glide Path" is not explicitly defined in AC120-29A. Glide Path Angle is defined.

Section 91.129 (3): "Reference to outer marker would be replaced with "*Precision Final Approach Fix.*"
This terminology is not supported by AC120-29A.

Page 77331
III, **Section 91.175 Takeoff and Landing Under IFR**
Section 91.175(h): "…would be amended by *removing* the RVR table from paragraph (h)(2) and replacing it with a reference to TERPS which contains the RVR table."
Comment: This refers to TERPS Paragraph 335, Table 7. We have the opportunity to harmonize a number of documents at this juncture.

AC120-29A Sections 4.3.5 and 4.3.6 point the operator to the Ops Specs detailed in Appendix 7, Ops Spec 051, which harmonizes the RVR and Visibility. Let's update TERPS, the AIM, the Instrument Flying Handbook, and the Flight Information Publication, so that they all agree. **Rather than removing the RVR table, reproduce Table 1 and 2 from AC120-29A, Appendix 7, Ops Spec 051**.

Page 77334
Section 121.349 **Communication and Navigation Equipment…**
Continues on Page 77335 where the very first sentence again references *precision approach and APV*.

Page 77335
Section 121.349 (Last Sentence)
Comment: FAA should be encouraged to adopt performance based language, rather than narrow prescriptive language.

Page 77335
Section 121.651 (last sentence)
"…and any other *precision* instrument approach system."
Comment: This language is not supported by AC120-29A.

Page 77336
Section 125.381 Takeoff and Landing Weather Minimums: IFR
Paragraph mentions "*precision final approach fix*" in Paragraph c(1).

Page 77336
Section 135.93 Autopilot: Minimum Altitude
Proposed Paragraph (b) would mention *APV*

Page 77337
Section 135.225 IFR: Takeoff, Approach, and Landing Minimums
C (1) Want to include terms "*precision or APV approaches*"
This language is not supported by AC120-29A.

C(3) Change wording to "on a *nonprecision* final approach."
This language is not supported by AC120-29A

Page 77339
Part 1 – Definitions and Abbreviations
Approach Procedure with Vertical Guidance:
This definition is not supported by AC120-29A.

Category I (CAT I): "…a *precision* instrument approach and landing…"
Category II: "…a *precision* instrument approach and landing…"
Category III: "…a *precision* instrument approach and landing…"
Category IIIa: "…a *precision* instrument approach and landing…"
Category IIIb: "…a *precision* instrument approach and landing…"
Category IIIc: "…a *precision* instrument approach and landing…"
These definitions are not supported by AC120-29A.

Final Approach Fix: "..beginning of a *nonprecision* final approach segement…"
This definition is not supported by AC120-29A.

Minimum Descent Altitude (MDA): "…on a *nonprecision* final approach…"
This definition is not supported by AC120-29A
Nonprecision Approach (NPA) Procedure: This definition is not supported by AC120-29A.

Precision Approach procedure (PA): This definition is not supported by AC120-29A.
Precision Final Approach Fix (PFAF): "…defines the beginning of the *precision* or *APV* final approach segment…"
This definition is not supported by AC120-29A.

Page 77340
1.2 Abbreviations

APV
NPA
PA
Neither the definition nor the abbreviations are supported by AC120-29A.

Page 77340
Part 91-General Operating and Flight Rules
91.129 (2): "…operations with *vertical guidance (APV) or a precision approach*…"
This terminology is not supported by AC120-29A.
91.129 (2)(i): "…the published *Precision Final Approach Fix (PFAF)…"*
This terminology is not supported by AC120-29A.

Page 77341
91.175 **Takeoff and Landing under IFR**
(f) Civil airport takeoff minimums: "…where takeoff minimums are based on a specified route, persons operating the aircraft must comply with that route unless an alternative route has been assigned by ATC."
Comment: This may well be a sleeper: **Does this invalidate our 10-7 Engine Failure Turn Procedure Programs?**

Page 77345
121.651 Takeoff and Landing Weather Minimums: IFR
(d) "*precision*" approach mentioned twice in this section.
This terminology is not supported by AC120-29A.

Page 77346
129.17 Aircraft communication and navigation equipment
(a) "…for *precision* approach and *APV* operations."
This terminology is not supported by AC120-29A.

Page 77347
131.93 Contains "*precision approach*" twice in this paragraph.
This terminology is not supported by AC120-29A.

Page 77347
135.165 Communication and navigation equipment
Makes reference to "*precision approach and APV* operations".
This terminology is not supported by AC120-29A.

Page 77348
135.225 IFR: Takeoff, approach and landing minimums
(c)(1) "*precision or APV approach*"
(c)(3) "*nonprecision approach*"
This terminology is not supported by AC120-29A.

Because of the limited time for making comments, these comments should not necessarily be considered to be complete or final.

END OF COMMENTS